

### **REMARKS**

Claims 60-62, 64 and 66 are pending in the application.

Claims 60-62, 64 and 66 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over a combination of Nguyen, U.S. Patent No. 5,356,722; Ikeda, U.S. Patent No. 5,593,741; and Wolf, *Silicon Processing for the VLSI Era*, Vol. 1 (1986) pp. 166-167. The Examiner is reminded by direction to MPEP § 2143 that a proper obviousness rejection has the following three requirements: 1) there must be some suggestion or motivation to modify or combine reference teachings; 2) there must be a reasonable expectation of success; and 3) the combined references must teach or suggest all of the claim limitations. Claims 60-62, 64 and 66 are allowable over the cited combination of Nguyen, Ikeda and Wolf for at least the reason that the references, individually or as combined, fail to disclose or suggest each and every limitation in any of those claims.

Independent claim 60 recites a method of depositing SiO<sub>2</sub> comprising providing rf power of 600W within a CVD reactor, injecting TEOS into the reactor at 975 sccm, feeding gaseous H<sub>2</sub>O<sub>2</sub> into the reactor, and decomposing the TEOS at a pressure of from 10 to 80 Torr. At page 2 of the present Action the Examiner indicates reliance upon Nguyen as disclosing depositing a SiO<sub>2</sub> layer utilizing an rf power of 300 to 1000 watts, injecting liquid TEOS, and decomposing the TEOS at a pressure of from 5-15 Torr. The Examiner is mistaken. Referring to Nguyen at column 3, lines 49-54 it is noted that Nguyen discloses utilization of a gas manifold 26 to supply process gases to chamber 13. Nowhere does Nguyen disclose or suggest providing liquid TEOS into the reactor as recited in claim 60.

The Examiner indicates reliance upon Nguyen at column 4, lines 33-46 (table) for various conditions, including rf power, temperature and flow rate. Applicant notes however

that the table at column 4, lines 33-46 is specifically indicated as specifying conditions appropriate for forming the nitrogen-containing layer which will underlie an eventual silicon oxide layer. The conditions utilized for depositing silicon oxide are specified at column 4, lines 51-59. These conditions include TEOS flow at 1000 to 5000 sccm which does not overlap the claim 60 recited TEOS flow. The Nguyen disclosure further indicates the reaction pressure as being 500 Torr which does not teach or suggest the claim 60 recited decomposition of TEOS at a pressure of from 10 Torr to about 80 Torr. Further, Nguyen does not disclose or suggest the claim 60 recited rf power of 600 watts for depositing SiO<sub>2</sub> and specifically indicates that the rf power is turned off during the thermal silicon oxide deposition (col. 3, ll. 67 through col. 4, ll. 3). Accordingly, the Examiner's basis of reliance on Nguyen is not supported by the Nguyen disclosure.

As indicated at page 3 of the present action, Wolf is relied upon as disclosing/defining a "cold-wall" reactor. Such disclosure does not teach or suggest the claim 60 recited parameters or the recited injection of liquid TEOS.

Ikeda discloses flowing organo-silicon compound gas and oxygen into a reaction chamber (col. 2, ll. 41-45, 54-57 and 63-65). Ikeda specifically indicates providing TEOS gas into the reaction chamber by passing through an evaporator 32 where the evaporator is "kept heated so as to completely vaporize the supplied TEOS" (col. 4, ll. 55-62). Ikeda therefore does not disclose or suggest the claim 60 recited injecting liquid TEOS into a reactor at 975 sccm. Accordingly, where not one of the relied upon references discloses or suggests injecting liquid TEOS into a reaction chamber, the combination fails to disclose or suggest the claim 60 recited injecting liquid TEOS at 975 sccm and decomposing the TEOS to form SiO<sub>2</sub> at a pressure of from 10 Torr to about 80 Torr utilizing an rf power of

600 watts for SiO<sub>2</sub> deposition. Accordingly, independent claim 60 is not rendered obvious by the cited combination of Nguyen, Ikeda and Wolf and is allowable over these references.

Dependent claims 61-62, 64 and 66 are allowable over Nguyen, Ikeda and Wolf for at least the reason that they depend from allowable base claim 60.

For the reasons discussed above, claims 60-62, 64 and 66 are allowable. Accordingly, applicant respectfully requests formal allowance of such claims in the Examiner's next action.

Respectfully submitted,

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